CHROMIUM

(Data in thousand metric tons gross weight unless otherwise noted)

Domestic Production and Use: In 2006, the United States consumed about 9% of world chromite ore production in various forms of imported materials, such as chromite ore, chromium chemicals, chromium ferroalloys, and chromium metal. One U.S. company began mining chromite ore in Oregon. This was the first U.S chromite ore mine production since 1961. Imported chromite was consumed by one chemical firm to produce chromium chemicals. Stainless and heat-resisting steel producers were the leading consumers of ferrochromium. Superalloys require chromium. The value of chromium material consumption was about $468 million.

Salient Statistics—United States:[1]	2002	2003	2004	2005	2006[e]
Production:					
Primary	—	—	—	—	W
Secondary	174	180	168	124	125
Imports for consumption	263	317	326	353	355
Exports	29	46	35	57	60
Government stockpile releases	62	83	94	91	90
Consumption:					
Reported (excludes scrap)	241	245	268	257	260
Apparent[2] (includes scrap)	479	532	555	511	510
Unit value, average annual import (dollars per metric ton):					
Chromite ore (gross weight)	60	54	114	140	203
Ferrochromium (chromium content)	646	835	1,322	1,425	1,220
Chromium metal (gross weight)	5,767	5,271	5,823	8,007	7,727
Stocks, yearend, held by U.S consumers	8	10	8	9	9
Net import reliance[3] as a percentage of apparent consumption	64	66	70	76	75

Recycling: In 2006, chromium contained in reported stainless steel scrap receipts accounted for 25% of apparent consumption.

Import Sources (2002-05): Chromium contained in chromite ore and chromium ferroalloys and metal: South Africa, 50%; Kazakhstan, 30%; Zimbabwe, 8%; Russia, 7%; and other, 5%.

Tariff:[4] Item	Number	Normal Trade Relations 12-31-06
Ore and concentrate	2610.00.0000	Free.
Ferrochromium:		
Carbon more than 4%	7202.41.0000	1.9% ad val.
Carbon more than 3%	7202.49.1000	1.9% ad val.
Other:		
Carbon more than 0.5%	7202.49.5010	3.1% ad val.
Other	7202.49.5090	3.1% ad val.
Ferrochromium silicon	7202.50.0000	10% ad val.
Chromium metal:		
Unwrought powder	8112.21.0000	3% ad val.
Waste and scrap	8112.22.0000	Free.
Other	8112.29.0000	3% ad val.

Depletion Allowance: 23% (Domestic), 15% (Foreign).

Government Stockpile: The Defense Logistics Agency, U.S. Department of Defense, implemented the Annual Materials Plan for fiscal year (FY) 2006, which was in effect until September 30, 2006. Quantity available for sale was to be limited to sales authority or inventory. The Agency reported sales in FY 2006 of 61,500 tons of high-carbon ferrochromium, 42,692 tons of low-carbon ferrochromium, and 905 tons of chromium metal. Ferrochromium silicon and chemical- and metallurgical-grade chromite ore stocks have been exhausted. The last of the ferrochromium silicon stocks were shipped in June 2002; chemical-grade chromite ore, in September 2006; and metallurgical-grade chromite ore, in December 2003. At the current rate of disposal, refractory grade chromite ore will be exhausted in FY 2007; high-carbon ferrochromium, FY 2011; low-carbon ferrochromium, FY 2010; and chromium metal, FY 2012.

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CHROMIUM

Stockpile Status—9-30-06[5]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2006	Disposals FY 2006	Average chromium content
Chromite ore:						
Chemical-grade	—	—	—	90.7	—	28.6%
Refractory-grade	—	1.16	—	90.7	—	[e]23.9%
Ferrochromium:						
High-carbon	265	2.30	265	[6]136	61.5	71.4%
Low-carbon	134	0.502	134	([6])	42.7	71.4%
Chromium metal	5.28	0.174	5.28	0.454	0.905	100%

Events, Trends, and Issues: The price of ferrochromium declined from historically high levels reached in 2005. World stainless steel production, the source of ferrochromium demand, was expected to rise by more than 10% compared to that of 2005. China's importance as a consumer of raw materials increased owing to its strong economic growth and the expansion of its stainless steel production capacity. China's growth was generally recognized as the leading cause of increased chromium demand. Chinese stainless steel production exceeded that of the United States in 2004. In 2007, when China's stainless steel production capacity has been projected to exceed its demand, China's current stainless steel suppliers (Asian and European countries) will have to export their production to other countries, a situation that could result in abundant supply. The price of nickel reached a 17-year high. High chromium and nickel prices resulted in higher stainless steel prices, which stimulated the use of less costly stainless steel grades, other metals, or nonmetallic materials. If stainless steel users shift to less costly stainless grades, nickel demand would fall without depressing chromium demand. If stainless consumers shift to other alloys, metals, or materials, demand for both chromium and nickel would decrease.

The percentage of chromite ore mined in South Africa that was sold in South Africa increased to 88% in 2004 from 71% in 1996, reflecting its progress in producing value added products from its raw material resources. Chinese demand for chromite ore resulted in increased exports of South African chromite ore after 3 consecutive years of declining chromite ore exports. The U.S. Environmental Protection Agency regulates chromium releases to the environment.

World Mine Production, Reserves, and Reserve Base:

	Mine production[7]		Reserves[8] (shipping grade)[9]	Reserve base[8] (shipping grade)[9]
	2005	2006[e]		
United States	—	W	110	120
India	3,260	3,300	25,000	57,000
Kazakhstan	3,580	3,600	290,000	470,000
South Africa	7,500	8,000	160,000	270,000
Other countries	4,970	5,000	NA	NA
World total (rounded)	19,300	20,000	NA	NA

World Resources: World resources are greater than 12 billion tons of shipping-grade chromite, sufficient to meet conceivable demand for centuries. About 95% of the world's chromium resources is geographically concentrated in Kazakhstan and southern Africa; U.S. chromium resources are mostly in the Stillwater Complex in Montana.

Substitutes: Chromium has no substitute in stainless steel, the leading end use, or in superalloys, the major strategic end use. Chromium-containing scrap can substitute for ferrochromium in metallurgical uses.

[e]Estimated. NA Not available. — Zero.

[1]Data in thousand metric tons of contained chromium unless otherwise noted.

[2]Calculated consumption of chromium; equal to production (from mines and scrap) + imports – exports + stock adjustments.

[3]Defined as imports – exports + adjustments for Government and industry stock changes.

[4]In addition to the tariff items listed, certain imported chromium materials (see United States Code, title 26, sections 4661, 4662, and 4672) are subject to excise tax.

[5]See Appendix B for definitions.

[6]Disposal plan for ferrochromium without distinction between high-carbon and low-carbon ferrochromium; total included in high-carbon.

[7]Mine production units are thousand metric tons, gross weight, of marketable chromite ore.

[8]See Appendix C for definitions. Reserves and reserve base data are not comparable among countries because the criteria used to determine the resources of India (Indian Bureau of Mines), Kazakhstan (open literature reports in trade journals and at conferences), and South Africa (JORC compliant, company annual reports) were different.

[9]Shipping-grade chromite ore is deposit quantity and grade normalized to 45% Cr_2O_3.